

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Applicants: : William Martin et al.
Serial No. : 10/014,342
Filing Date : November 13, 2002
Title of Invention : AUTOMATICALLY-ACTIVATED HAND-SUPPORTABLE
LASER SCANNING BAR CODE SYMBOL READING SYSTEM
WITH OMNIDIRECTIONAL AND...
Examiner : Jared Fureman
Group Art Unit : 2876
Attorney Docket No. : 108-136USA000

Honorable Commissioner of Patents
and Trademarks
Washington, DC 20231

INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. 1.97

Sir:

In order to fulfill Applicants' continuing obligation of candor and good faith as set forth in 37 C.F.R. 1.56, Applicants submit herewith an Information Disclosure Statement prepared in accordance with 37 C.F.R Sections 1.97, 1.98 and 1.99.

The disclosures enclosed herewith are as follows:

U.S. PUBLICATIONS

<u>NUMBER</u>	<u>FILING DATE</u>	<u>TITLE</u>
6,283,375 B1	December 3, 1998	AUTOMATICALLY-ACTIVATED HAND-SUPPORTABLE LASER SCANNING BAR CODE SYMBOL READING SYSTEM WITH DATA TRANSMISSION ACTIVATION SWITCH
6,257,492	June 1, 1999	COMBINATION HAND-HELD AND COUNTER-TOP OMNI-DIRECTIONAL SCANNER
6,247,647 B1	January 13, 1999	SCAN PATTERN GENERATOR CONVERTIBLE BETWEEN MULTIPLE AND SINGLE LINE PATTERNS

6,216,953	July 9, 1996	OPTICAL READER CONTROLLING OPERATION BETWEEN DIFFERENT SCANNING MODES
6,085,981	July 3, 1997	AUTOMATIC HAND-MOUNTED BAR-CODE SYMBOL LASER SCANNER
5,988,508	June 10, 1997	LASER SCANNING SYSTEM AND SCANNING METHOD FOR READING 1-D AND 2-D BARCODE SYMBOLS
5,979,766	June 13, 1997	BAR CODE SYMBOL READING SYSTEM HAVING ONE-WAY RF SIGNAL-RECEIVING KEYBOARD WEDGE INTERFACE
5,844,227	May 13, 1996	AUTOMATIC HAND-SUPPORTABLE OMNIDIRECTIONAL LASER PROJECTION SCANNER WITH SCAN-HEAD DIRECTED PROJECTION AXIS FOR INTUITIVE HAND-SUPPORTED OMNIDIRECTIONAL SCANNING OF BAR CODE SYMBOLS WITHIN A NARROWLY CONFINED SCANNING VOLUME EXTENDING THEREABOUT
5,796,091	May 13, 1996	AUTOMATIC HAND-SUPPORTABLE OMNIDIRECTIONAL LASER PROJECTION SCANNER WITH HANDLE-CONTROLLABLE PROJECTION AXIS
5,789,730	June 14, 1996	AUTOMATIC HAND-SUPPORTABLE LASER SCANNER AND METHOD OF READING BAR CODE SYMBOLS USING SAME
5,719,385	December 8, 1995	OPTICAL SCANNER HAVING MULTI-LINE AND SINGLE-LINE SCANNING MODES
5,691,528	January 25, 1995	SCANNING SYSTEM FOR EITHER HAND-HELD OR STATIONARY OPERATION FOR READING 1-D OR 2-D BARCODES
5,637,856	September 25, 1995	SCANNING SYSTEM AND SCANNING METHOD WITH SCAN PATTERN

		CONTROL FOR READING 1-D AND 2-D BARCODE SYMBOLS
5,608,202	June 6, 1995	SYMBOL SCANNING SYSTEM AND METHOD HAVING ADAPTIVE PATTERN GENERATION
5,260,553	September 17, 1990	AUTOMATIC HAND-SUPPORTABLE LASER BAR CODE SYMBOL SCANNER AND METHOD OF READING BAR CODE SYMBOLS USING THE SAME
5,214,270	November 22, 1991	MODULAR HANDHELD OR FIXED SCANNER
5,200,599	July 14, 1992	SYMBOL READERS WITH CHANGEABLE SCAN DIRECTION
5,148,008	November 12, 1991	MARK READING DEVICE WITH CYCLICLY VARYING POWER
4,639,606	October 26, 1984	BAR CODE SCANNER LASER RADIATION EXPOSURE LIMIT- CONTROL SYSTEM
4,465,926	March 5, 1982	OPTICAL READING DEVICE FOR THE MANUAL OPTICAL SCANNING AND FOR EVALUATING OPTICALLY READABLE CHARACTER CODES

FOREIGN PUBLICATIONS

<u>NUMBER</u>	<u>PUBLICATION DATE</u>	<u>TITLE</u>
JP411203397A	July 30, 1999	BAR CODE READER

TECHNICAL PUBLICATIONS

Product brochure for the LMC555 CMOS Timer by National Semiconductor Corporation, March 2002, pages 1-10.

STATEMENT OF PERTINENCE

U.S. Patent No. 6,283,375 to Wilz et al., discloses an automatically-activated code symbol reading system comprising a bar code symbol reading mechanism contained within a hand supportable housing having a manually-actuatable data transmission switch. During symbol reading operations, the bar code symbol reading mechanism automatically generates a visible laser scanning pattern for repeatedly reading one or more bar code symbols on an object during a bar code symbol reading cycle, and automatically generating a new symbol character data string in response to each bar code symbol read thereby. During system operation, the user visually aligns the visible laser scanning pattern with a particular bar code symbol on an object (e.g. product, bar code menu, etc.) so that the bar code symbol is scanned, detected and decoded in a cyclical manner. Each time the scanned bar code symbol is successfully read during a bar code symbol reading cycle, a new bar code symbol character string is produced, while an indicator light on the hand-supportable housing is actively driven. During the bar code symbol reading cycle, the user actuates the data transmission switch producing a data transmission control activation signal and enabling a subsequently produced symbol character data string to be automatically selected and transmitted to the host system. By virtue of the present invention, automatically-activated hand-supportable bar code symbol readers are now able to accurately read, in an unprecedented manner, bar code symbols on bar code menus, consumer products positioned in crowded point-of-sale environments, and other objects requiring automatic identification and/or information access.

U.S. Patent No. 6,257,492 to Bressler et al. discloses a bar code scanner for either fixed or hand-held disposition at a counter. The scanner includes a compact housing including a spherical head with a window and a downwardly protruding stem, and a sliding carriage attached to the base of the stem. The stem and sliding carriage cooperate with arcuate guide rails in the compact base for positioning the window via pivoting the head about a horizontal axis. An omni-directional scanning assembly is mounted in the head and this includes an object detection circuit for detecting and determining the presence of an object within an operative scanning field, a light source for generating a laser beam when an object is within the scanning field, a scanning mechanism for scanning the light beam across the object and its bar code, a photoreceiving circuit for receiving light reflected from the bar code, an A/D converter for generating a digital signal representing the light reflected from the bar code, and processing and control circuitry for decoding the bar coded-information and controlling overall system flow.

U.S. Patent No. 6,247,647, to Courtney et al. discloses an arrangement for and a method of reading bar code symbols on a target to move a light beam emitted by a light source in a multiple line, scan pattern during a scan period in a first operational mode. Upon selection of a second operational mode by a user, a controller intermittently operates and energizes the light source to emit the light beam for a working time period which is less than, and a fraction of, the scan period to generate a single scan line across the symbol.

U.S. Patent No. 6,216,953 to Kumagai et al. discloses an optical reader which is capable of reading a bar code in a mounted state when an article carrying the bar code passes and is capable of reading bar codes set in an array format on a menu sheet in a hand-held state. The optical reader comprises a light source, a scanner that is driven by a drive and scans light emanating from the light source, a plurality of reflection mirrors that reflect scanning light scanned by the scanner

and create a scanning pattern composed of a plurality of scan trajectories, a read window through which scanning light reflected from the reflection mirrors is emitted, and a light receiver for receiving light reflected from a mark. The optical reader further comprises a mode changer for changing a plurality of operation modes among which one or ones of the plurality of scan trajectories to be validated for reading are different. The operation modes include a specific scanning ray mode in which reading the mark by tracing only a single scan trajectory constituting the scanning pattern is validated but reading the mark by tracing the multiple scan trajectories is invalidated. For reading any of bar codes set in an array format on a menu sheet, the single scan trajectory constituting the scanning pattern will be drawn on a bar code to be read. Since reading by tracing the multiple scan trajectories is invalid, only the bar code intended to be read is read.

U.S. Patent No. 6,085,981 to Knowles et al. discloses a portable automatic code symbol reading system having a laser scanning engine mounted upon the hand of its operator to provide hands-free automatic laser scanning capabilities. The automatic code symbol reading system includes a battery power supply aboard its hand-mounted housing, and a power-conserving control subsystem for conserving the consumption of electrical power during automatic portable laser scanning operations. The control subsystem of the present invention has a plurality of control centers which control the operation of the system components in accordance with preselected system control operations. Each of the control centers is responsive to control activation signals generated by certain of the system components upon the occurrence of predefined conditions. Certain of the control centers are capable of overriding other control centers to provide diverse control capabilities. These control capabilities facilitate execution of intelligent functions and power consumption measures required during automatic, hands-free code symbol reading operations.

U.S. Patent No. 5,988,508 to Bridgelall et al. discloses a reader for electro-optical reading bar code symbols of reduced height, comprises a light source for generating a light beam along an optical path; a pair of oscillatable reflectors in the optical path; a first drive for oscillating the reflectors at different frequencies that are a ratio of about 10%-30% apart to create a scan pattern; and a second drive for rotating the scan pattern about an axis that is generally orthogonal to the scan pattern.

U.S. Patent No. 5,979,766 to Rockstein et al. discloses a fully automatic bar code symbol reading system having at least one portable bar code symbol reading device and an associated base unit positioned within the data transmission range of the bar code reader range without a physical wiring connection between the bar code reader and the base unit. After each successful reading of a bar code symbol, the bar code reading device automatically produces symbol character data representative of the bar code symbol, synthesizes a group of data packets each containing the symbol character data, and then transmits the synthesized group of data packets to the base unit. Upon the successful receipt of one of the transmitted data packets and the recovery of symbol character data therefrom, the base unit generates an acoustic acknowledgement signal that is perceptible to the user of the bar code symbol reading device and indicates that the transmitted symbol character data has been successfully received. The base unit includes data format conversion circuitry that converts the symbol character data into the same format produced by a computer keyboard, and an interface circuit that interfaces the output port of the base unit with the keyboard input port of the host device.

U.S. Patent No. 5,844,227 to Schmidt et al. discloses a fully automatic bar code symbol reading system comprising an automatic (i.e., triggerless) portable bar code symbol reading device with an omnidirectional projection laser scanning engine mounted within the head portion of its hand-supportable housing, and an associated base unit positioned within the data transmission range thereof without a physical wiring connection thereto. The hand-supportable bar code symbol reading device produces a narrowly confined scanning volume for omnidirectional scanning of code symbols presented therein, while preventing unintentional scanning of code symbols on nearby objects located outside thereof.

U.S. Patent No. 5,796,091 to Schmidt et al. discloses a fully automatic bar code symbol reading system having an automatic (i.e., triggerless) portable bar code symbol reading device with an omnidirectional projection laser scanning engine mounted within the head portion of its hand-supportable housing, and an associated base unit positioned within the data transmission range without a physical wiring connection. The hand-supportable bar code symbol reading device produces a narrowly confined scanning volume for omnidirectional scanning of the code symbols presented, while preventing unintentional scanning of code symbols on nearby objects located outside the scanning volume.

U.S. Patent No. 5,789,736 to Rockstein et al. discloses a method and apparatus for reading bar code symbols using a substrate hand-holdable bar code symbol reading device. In general, the automatic bar code symbol reading device comprises a hand-holdable housing containing operative elements which provide an object detection field and a scan field each defined external to the housing. The method involves automatically detecting the presence of an object within the object detection field by sensing object sensing energy reflected off the object. In a preferred embodiment, the object sensing energy is IR radiation produced from an object sensing energy source disposed within the housing. In automatic response to the detection of the object within the object detection field, the hand-holdable device detects the presence of a bar code within the scan field using a laser beam produced within the housing. Then, in automatic response to the detection of a bar code in the scan field, the automatic hand-holdable bar code symbol reading device reads the detected bar code in the scan field by producing scan data signals from the detected bar code and thereafter collecting and analyzing the same. Another aspect of the present invention concerns a hand-holdable data collection device adapted for use with the automatic bar code symbol reading device to form a portable symbol reading system characterized by versatility and simplicity of use.

U.S. Patent No. 5,719,385 to Wilke, Jr. et al. discloses an optical scanner for reading two-dimensional bar code labels. A rotating reflector directs a laser beam towards a plurality of pattern mirrors during a first mode of operation to produce a plurality of different scan lines forming a multi-line scan pattern for collecting light from an article having a one-dimensional bar code label, and directs the laser beam towards one of the pattern mirrors during a second mode of operation to produce a single scan line for collecting light from an article having a two-dimensional bar code label. A single tilted mirror assembly, having a motor for rotating a drive shaft and a mirror mounted at an angle to the drive shaft, reflects the plurality of different scan lines towards the article having the one-dimensional bar code label during the first mode of operation, and reflects the one scan line from the scan module towards the article having the two-dimensional bar code label during the second mode of operation.

U.S. Patent No. 5,691,528 to Wyatt et al. discloses an optical scanning system of one and

two-dimensional barcode symbols that is carried out using a variety of ergonomic scanner embodiments which can each be used either in a hand-held mode or in a fixed-mode. In certain embodiments, hand-held scanners are described, which can, if required, be easily positioned in a number of desired orientations on a work surface. Other embodiments disclose point-of-sale arrangements incorporating removable barcode scanners that can, where necessary, be removed from the point-of-sale unit and used by the checkout operator to scan a large or bulky item in a "point-and-shoot" mode.

U. S. Patent No. 5,637,856 to Bridgelall et al. discloses an optical scanning system of one- and two-dimensional barcode symbols that is carried out first in an aim mode wherein the symbol is scanned using a first scan pattern that is relatively small and dense so as to be visible to the user and thereafter using a second, larger and more robust scan pattern for decoding. During aiming, the symbol is partially decoded to determine type and orientation, and this information is applied to control the angle of the scan pattern produced, the rate at which the scan pattern is increased for optimum decoding, and the ultimate pattern size. Preferred scan patterns, as well as unique scan mechanisms, are described.

U.S. Patent No. 5,608,202 to Bridgelall et al. discloses a self-adjusting adaptive scanning system which includes a scanner that is responsive to coordinate control signals, for directing a light beam in a pattern at a bar code symbol, for detecting a reflected portion of the light beam, and for generating feedback signals reflecting successful decodes. A microprocessor, responsive to the feedback signals, generates pattern control signals. A pattern generator generates the coordinate control signals in response to the pattern control signals to select a desirable light beam pattern.

U.S. Patent No. 5,260,553 to Rockstein et al. discloses an automatic bar code symbol reading system comprising components for carrying out object detection, scanning, photoreceiving, A/D conversion, bar code presence detection, symbol decoding, data format conversion, data storage and data transmission functions. In general, the bar code symbol reading device includes a control system having a plurality of control centers that control the operation of the system components in accordance with preselected system control operations. Each of the control centers is responsive to control activation signals generated by certain of the system components upon the occurrence of predefined conditions. Certain of the control centers are capable of overriding other control centers to provide diverse control capabilities which facilitate execution of intelligent operations and power conservation, during bar code symbol reading.

U.S. Patent No. 5,214,270 to Rando et al. discloses a bar code scanning system which can be operated in two scanning categories: handheld and fixed. The system incorporates a second scanning element having a fixedly mounted mirror and a dithering mirror disposed in relation to a hand-held scanner which is removably positioned in a holder means.

U.S. Patent No. 5,200,599 to Krischever et al. discloses a scanner in which the scan direction of at least one scan line is changeable for reading bar code symbols by selectively reversing a drive.

U.S. Patent No. 5,148,008 to Takenaka discloses a mark reading device that reads marks such as a bar code, or the like on a remote surface. A laser beam is outputted, deflected through a

scan angle and the reflected energy is read at a detector. This energy is processed and converted to a usable format for input into a computer, cash register, or any type of data collection device. The present invention improves depth of field and readability by varying the output energy of the laser after each successive scan, thus providing a range of energy levels at the detector.

U.S. Patent No. 4,639,606 to Boles et al. discloses a bar code scanner laser radiation exposure limit control system. In order to meet the requirements for laser radiation safety, namely laser output which can enter the naked human eye indefinitely and cause no discernible damage (Class I emission limit) in a code symbol (bar code) scanner, a mode controller is used for generating a laser enabling the signal so as to turn the laser on in a search mode until the symbols are acquired and in an in-code mode while the symbols are being scanned. When the laser is turned on it operates at a power output which would exceed the Class I emission limits if operated continuously. Circuitry is provided for operating the mode controller so that the laser is not enabled to turn on for a period long enough to exceed Class I limits. Such circuitry may be an integrator or accumulator which responds to the time that the mode controller turns the laser on and which provides an output for inhibiting the mode controller from turning the laser on for a period of time sufficient to prevent the Class I emission limit from being exceeded. The circuitry may alternatively be a pulse generator which permits the mode controller to turn the laser on repetitively during a "find paper" mode with a duty cycle such that the Class I emission limits are not exceeded.

U.S. Patent No. 4,465,926 to Apitz et al. discloses a hand-held bar-code reader which forms part of an optical reading device and is capable of being led by hand over the bar code, and comprises a storage circuit for storing the data pulse train corresponding to the scanning signals, and a photo- or sound-transmitter by which the stored data pulse train is transmitted to a separate equipment, such as a video tape recorder or radio receiver provided with a photo- or sound-receiver and an evaluating circuit. In another example of embodiment, the equipment comprising the evaluating circuit, contains a reader compartment provided with a connector member for connection to the reader which, following the scanning and storing of one or more words of the character code, is returned to its compartment and is automatically read out via the connector contacts.

Japanese patent No. JP411203397A to Asai discloses a bar code reader which is provided with an optical device in which the light emission timing of a laser diode emits a laser beam for reading a bar code which is controlled by an electric circuit so that an optical scanning pattern of the laser beam can be switched to either a single scanning pattern or a multi-scanning pattern. A bar code for setting an optical scanning pattern is read through the optical device so that a user can set and change the optical scanning pattern at the time of hand-held use as necessary. Thus, the user can allow the bar code reader to read the bar code with an optimal optical scanning pattern corresponding to the type of the bar code to be read at the time of hand-held use, and operability at the time of hand-held use can be improved.

The product brochure for National Semiconductor Corporation's LMC555 CMOS Timer describes a version of the industry standard 555 series purpose timers. In addition to the standard package (SOIC, MSOP, and MDIP) the LMC555 is also available in a chip sized package (8 Bump micro SMD) using National's micro SMD package technology. The LMC555 offers the same capability of generating accurate time delays and frequencies as the LM555, but with much

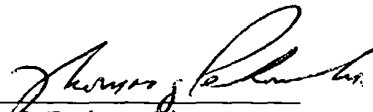
lower power dissipation and supply current spikes. When operated as a one-shot, the time delay is precisely controlled by a single external resistor and capacitor. In the stable mode the oscillation frequency and duty cycle are accurately set by two external resistors and one capacitor. The use of National Semiconductor's LMCMOS process extends both the frequency range and low supply capability.

A separate listing of the above references on PTO Form 1449 and a copy of these references are enclosed herewith for the convenience of the Examiner.

The Commissioner is also hereby authorized to charge any fees required in connection with this document to Deposit Account No. 16-1340.

Respectfully submitted,

Dated: August 22, 2003



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Substitute for form 1449A/PTO

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DISCLOSURE STATEMENT
BY APPLICANT**

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Complete If Known

Application Number	10/014,342
Filing Date	November 13, 2002
First Name Inventor	Martin et al.
Group Art Unit	2876
Examiner Name	Jared Fureman
Attorney Docket Number	108-136USA000

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Documents		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Intn'l Class / Sub Class
		Number	Kind Code (if known)			
		6,283,375 B1		Wilz et al.	09/04/2001	G06K 7/10
		6,257,492		Bressler et al.	07/10/2001	G06K 007/10
		6,247,647 B1		Courtney et al.	06/19/2001	
		6,216,953		Kumagai et al.	04/17/2001	G06K 7/10
		6,085,981		Knowles et al.	07/11/2000	G06K 7/10
		5,988,508		Bridgelall et al.	11/23/1999	G06K 007/10
		5,979,766		Rockstein et al.	11/09/1999	G06K 7/10
		5,844,227		Schmidt et al.	12/01/1998	G006K /7
		5,796,091		Schmidt et al.	08/18/1998	G06K 7/10
		5,789,730		Rockstein et al.	08/04/1998	G06K 7/10
		5,719,385		Wilke, Jr. et al.	02/17/1998	G06K 7/10

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Documents		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Intr'l Class / Sub Class
		Number	Kind Code (if known)			
		5,691,528		Wyatt et al.	11/25/1997	G06K 007/10
		5,637,856		Bridgelall et al.	06/10/1997	G06K 007/10
		5,608,202		Bridgelali et al.	03/04/1997	G06K 007/16
		5,260,553		Rockstein et al.	11/09/1993	G06K 7/10
		5,214,270		Rando et al.	05/25/1993	G06K 007/10
		5,200,599		Krichever et al.	04/06/1993	G06K 7/10
		5,148,008		Takenaka	09/15/1992	G06K 7/10
		4,639,606		Boles et al.	01/27/1987	G06K 7/10
		4,465,926		Apitz et al.	08/14/1984	

FOREIGN PATENT DOCUMENTS								
Examiner Initials		Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Intn'l Class / Sub Class	T *
		Numbe r	Kind Code (if known)					
		JP	JP41120339 7A		Denso Corp.	07/30/1999	G06K007/10	

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is inconformance with MPEP 609; Draw line through citation if not in conformance not considered. Include copy of this form with next communication to applicant.

(INFORMATION DISCLOSURE STATEMENT – SECTION 9 PTO-1449)

PUBLICATIONS		
Examiner Initials	Cite No.	Description
		Product brochure for the LMC555 CMOS Timer by National Semiconductor Corporation, March 2002, pages 1-10.